Format No: CP/TF/01

TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Lab ID	:	**CP-2018-04-03-08** **Date: 06-04-18**
Customer	:	Assistant Executive Engineer, Project Division, BBMP, Bangalore.
Address	:	Project Division, BBMP, Bangalore.
Project Name	:	Providing Granite Benches in Ward No.03.
Agency	:	Technical Manager (West), KRIDL, Bangalore.
Customer's Reference	:	EE(Project)/YnkZone/WO/206/17-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	03-04-18
Sample ID No	:	2018-04-03-08 /01
Sample Type	:	Zuari 53grade
Reference to BIS codes	:	IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification , IS 4031 (Part 1,2 3,4,5, 6,11):1988 IS 4031 Part 1 DETERMINATION OF FINENESS BY DRY SIEVING, Clause 4 4 IS 4031 Part 2, Determination of Fineness by Blaine Air Permeability Method, Clause 5 IS 4031 Part 3, Determination of Soundness, Clause 5,Clause 6 IS 4031 Part 4, Determination of Consistency of Standard Cement Paste, Clause 5 IS 4031 Part 5, Determination of Initial & Final Setting Time, Clause 5 IS 4031 Part 11,DETERMINATION OF DENSITY , Clause 6
Date of test	:	04-04-18
Environmental Conditions during test	:	Temperature: 26°C Humidity: 72%

Sl.No.	Physical properties	Results	Requirement as per IS 12269: 2013
1	Fineness by dry sieving (%)	1.29	–
2	Finess by Air permeablity method (m^2/kg,Min)	298.6	225m^2/kg, Min
3	Density (gm/cc)	3.13	–
4	Standard Consistency (%)	29.5%	Not specified
5	Initial Setting time	155 minutes	Not less than 30 minutes
6	Final Setting time	265 minutes	Not more than 600 minutes
7	Soundness (Le Chatelier's Method)	1.0mm	Not more than 10 mm

Note:

The results pertain to the samples received and tested.

All information furnished by Customer/Representative

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Samples will be disposed after 90 days from the date of issue of test certificate

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Authorized Signatory
Quality Manager

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TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Lab ID	:	CP-2018-04-03-08 **Date: 02-05-18**
Customer	:	Assistant Executive Engineer, Project Division, BBMP, Bangalore.
Address	:	Project Division, BBMP, Bangalore.
Project Name	:	Providing Granite Benches in Ward No.03.
Agency	:	Technical Manager (West), KRIDL, Bangalore.
Customer's Reference	:	EE(Project)/YnkZone/WO/206/17-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	03-04-18
Sample ID No	:	2018-04-03-08 /01
Sample Type	:	Zuari 53grade
Reference to BIS codes	:	IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification , IS 4031 Part 4, Determination of Consistency of Standard Cement Paste, Clause 5 IS 4031 Part 6, Determination of Compressive Strength, Clause 6
Date of test	:	04-04-18
Environmental Conditions during test	:	Temperature: 26°C Humidity: 72%

Compressive Strength

Sl.No.	Physical properties	Results	Requirement as per IS 12269: 2013
1	3 Days	29.5N/mm^2	Not less than 27 N/mm^2
2	7 Days	39.0N/mm^2	Not less than 37 N/mm^2
3	28 Days	56.5N/mm^2	Not less than 53 N/mm^2

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TEST REPORT ON COARSE AGGREGATES

Lab ID	:	**CP-2018-04-03-08** **Date: 06-04-18**
Customer	:	Assistant Executive Engineer, Project Division, BBMP, Bangalore.
Address	:	Project Division, BBMP, Bangalore.
Project Name	:	Providing Granite Benches in Ward No.03.
Agency	:	Technical Manager (West), KRIDL, Bangalore.
Customer's Reference	:	EE(Project)/YnkZone/WO/206/17-18
Source of Sample	:	Sample supplied by Agency
Sample condition	:	Satisfactory
Date of Receipt	:	03-04-18
Sample ID No	:	2018-04-03-08 /02(a)
Sample Type	:	40mm down size coarse aggregate
Reference to BIS codes	:	IS: 383:2016 (Specification for Coarse and fine Aggregates) IS: 2386 :1963(Part - 1,3,4) RA2011 IS 2386 Part 1: Particle Size and Shape IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption IS 2386 Part 4: Mechanical Properties
Date of test	:	03-04-18

SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 40MM DOWN COARSE AGGREGATE:

Total weight taken : 15000 grams

Sample No.	Sieve No.	Weight Retained in gms	Cumulative Weight Retained in gms	% Cumulative Weight Retained	% Passing	Required as per IS 383:2016
1	80 mm	0	0	0.0	100	100
2	40 mm	198	198	1.3	98.7	90-100
3	20 mm	6238	6436	42.9	57.1	30-70
4	10 mm	5022	11458	76.4	23.6	10-35
5	4.75 mm	3215	14673	97.8	2.2	0-5
6	Pan	327	15000	100.0	0	---

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TEST REPORT ON COARSE AGGREGATES

Lab ID : **CP-2018-04-03-08** **Date: 06-04-18**

Sample ID No : 2018-04-03-08 /02(a)

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS:383-2016
1	Flakiness Index(%)	14.1	Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate
2	Elongation Index(%)	12.4	
3	Specific Gravity	2.65	_
4	Bulk Density(Loose) (Kg/l)	1.42	_
5	Bulk Density(Compacted) (Kg/l)	1.47	_
6	Water Absorption(%)	0.21	_

Note:

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TEST REPORT ON COARSE AGGREGATES

Lab ID	:	**CP-2018-04-03-08** **Date: 06-04-18**
Customer	:	Assistant Executive Engineer, Project Division, BBMP, Bangalore.
Address	:	Project Division, BBMP, Bangalore.
Project Name	:	Providing Granite Benches in Ward No.03.
Agency	:	Technical Manager (West), KRIDL, Bangalore.
Customer Reference	:	EE(Project)/YnkZone/WO/206/17-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	03-04-18
Sample ID No	:	2018-04-03-08 /02(b)
Sample Type/ Size	:	20mm down size coarse aggregate
Reference to BIS codes	:	IS: 383:2016 (Specification for Coarse and fine Aggregates) IS: 2386 :1963(Part - 1,3,4) RA2011 IS 2386 Part 1: Particle Size and Shape IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption IS 2386 Part 4: Mechanical Properties
Date of test	:	03-04-18

SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 20MM DOWN COARSE AGGREGATE:

Total weight taken : 5000 grams

Sample No.	Sieve No.	Weight Retained in gms	Cumulative Weight Retained in gms	% Cumulative Weight Retained	% Passing	Required as per IS 383:2016
1	40 mm	0	0	0	100	100
2	20 mm	266	266	5.3	94.7	90-100
3	10 mm	2377	2643	52.9	47.1	25-55
4	4.75 mm	2088	4731	94.6	5.4	0-10
5	Pan	269	5000	100	0	–

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TEST REPORT ON COARSE AGGREGATES

Lab ID : **CP-2018-04-03-08** **Date: 06-04-18**

Sample ID No : 2018-04-03-08 /02(b)

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS:383-2016
1	Flakiness Index(%)	**13.7**	Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate
2	Elongation Index(%)	**12.5**	
3	Specific Gravity	**2.63**	–
4	Bulk Density(Loose) (Kg/l)	**1.47**	–
5	Bulk Density(Compacted) (Kg/l)	**1.54**	–
6	Water Absorption(%)	**0.27**	–
7	Aggregate crushing Value(%)	**23.9**	Max 30% for Aggregates to be used in concrete for wearing Surface, In case Aggregate Crushing Value Exceeds 30% then the test for ten percent fines should be conducted for Aggregates to be used in concrete other than for wearing Surface.
8	Aggregate Impact Value(%)	**22.5**	30% for Aggregates to be used in concrete for wearing Surface, 45% for Aggregates to be used in concrete other than for wearing Surface.

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TEST REPORT OF FINE AGGREGATE

Lab ID	:	**CP-2018-04-03-08** **Date: 06-04-18**
Customer	:	Assistant Executive Engineer, Project Division, BBMP, Bangalore.
Address	:	Project Division, BBMP, Bangalore.
Project Name	:	Providing Granite Benches in Ward No.03.
Agency	:	Technical Manager (West), KRIDL, Bangalore.
Customer's Reference	:	EE(Project)/YnkZone/WO/206/17-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	03-04-18
Sample ID No	:	2018-04-03-08 /03
Sample Type	:	Fine Aggregate
Reference to BIS codes	:	IS 383 : 2016 (Specification for Coarse and fine Aggregates) IS: 2386 :1963(Part - 1, 3) RA2012 IS 2386 Part 1: Particle Size and Shape IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption
Date of test	:	03-04-18
Total weight taken	:	1000 grams

Sl.no	Sieve Size	Weight Retained (gms)	Cumulative Weight Retained (gms)	% Cumulative Weight Retained	% Passing	Requirement as per IS 383:2016			
						Grading Zone I	Grading Zone II	Grading Zone III	Grading Zone IV
1	10 mm	0	0	0.0	100.0	100	100	100	100
2	4.75 mm	55	55	5.5	94.5	90-100	90-100	90-100	95-100
3	2.36 mm	148	203	20.3	79.7	60-95	75-100	85-100	95-100
4	1.18 mm	183	386	38.6	61.4	30-70	55-90	75-100	90-100
5	600 micron	223	609	60.9	39.1	15-34	35-59	60-79	80-100
6	300 micron	242	851	85.1	14.9	5-20	8-30	12-40	15-50
7	150 micron	102	953	95.3	4.7	0-10	0-10	0-10	0-15
8	Pan	47	1000	100.0	0.0	---	---	---	---

Result :The tested Sample Conforms to Grading Zone II

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TEST REPORT OF FINE AGGREGATE

Lab ID : **CP-2018-04-03-08** **Date: 06-04-18**

Sample ID No : 2018-04-03-08 /03

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS 383:2016
1	Water Absorption(%)	1.38	_
2	Specific Gravity	2.54	_
3	Material finer than 75 micron(%)	4.1	Uncrushed fine Aggregate Max 3%, Crushed Fine aggregate Max 15%, Mixed Fine aggregate Max 12%, Manufactured Fine aggregate Max 10%

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TEST REPORT ON PHYSICAL REQUIREMENTS OF SOLID CONCRETE BLOCKS

Lab ID	:	**CP-2018-04-03-08** **Date: 07-04-18**
Customer	:	Assistant Executive Engineer, Project Division, BBMP, Bangalore.
Address	:	Project Division, BBMP, Bangalore.
Project Name	:	Providing Granite Benches in Ward No.03.
Agency	:	Technical Manager (West), KRIDL, Bangalore.
Customer's Reference	:	EE(Project)/YnkZone/WO/206/17-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	03-04-18
Sample ID No	:	2018-04-03-08 /07
Sample Type/Size	:	Solid concrete blocks of size (400X150X200)mm
Reference to BIS codes	:	IS : 2185 (Part 1) : 2005(RA 2010) Concrete Masonry Specification Part 1:Hollow and Solid Concrete Blocks (Dimensions -Annex-B, Clause 9.2 and 10 , Block density Annex -C Clause 9.3 and10, Compressive strength Annex -D Clause 9.4 and 10, Water absorption Annex -E Clause 9.5 and 10)
Date of test	:	04-04-18

BLOCK DENSITY:

Sl. No.	Measurement of overall Dimensions of Individual Blocks			Overall Volume of the Block in Cubic Centimetres	Weight of Oven Dried Block in Kilograms to the nearest 10 Gram	Block Density in Kg/cum*10^6	Avg.Block Density in (Kg/cum)	As per IS 2185 (Part 1):2005 (RA 2010)
	Length	Breadth	Height					
	mm	mm	mm	(Cm^3)	Kg	Kg/m^3	Kg/m^3	
1	402	152	202	12343	24.750	2005.2	2024.7	Not less than 1800Kg/m^3
2	401	150	201	12090	24.890	2058.7		
3	402	151	202	12262	24.650	2010.3		

WATER ABSORPTION:

Sl. No.	Wet weight after water absorption	Dry weight (Oven dry)	Water Absorption	Avg.Water Absorption	As per IS 2185 (Part 1):2005 (RA 2010)
	kg	kg	%	%	
1	25.780	24.610	4.75	4.52	Shall not be more than 10% by mass
2	25.890	24.810	4.35		
3	25.850	24.750	4.44		

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